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WESTERN SOUTH DAKOTA TIMBER PRODUCTION AND MILL RESIDUES, 1974

Theodore S. Setzer, Resource Analyst
Michael K. Barrett, Statistical Clerk

ABSTRACT

Roundwood timber production in South Dakota was 18 million cubic feet in 1974, up almost 20 percent from 1969's 15 million cubic feet. Saw log production was 12 million cubic feet compared to 7.4 million cubic feet in 1969. The estimated volume of residues from the sawmills was 7.7 million cubic feet, of which 3.8 million cubic feet was used, principally for pulp chips and fuel.

KEYWORDS: primary wood products, sawtimber, pulpwood, sawmill residues use

Western South Dakota's (west of the 103d meridian) 18 million cubic feet of timber production was at a record high level in 1974 (fig. 1), especially considering that the volume would be even larger if it included roundwood traditionally harvested in the State and processed in neighboring Wyoming plants.

In 1966, 23 percent of western South Dakota's total saw log production was "exported" to Wyoming for processing. It is reasonable to assume that a similar proportion of 1974 saw log production was likewise processed in Wyoming. Because Wyoming was not included in the 1974 timber production study, no 1974 "export" data are available.

Saw log production increased to 76.7 million board feet[1] in 1974 and accounted for two-thirds of the total roundwood harvest (table 1). Saw log volume in 1969 was 47.1 million board feet. Round pulpwood production dropped to 3.8 million cubic feet from 5.3 million cubic feet in 1969, thus ending the upward trend evident since 1958. All other roundwood products combined totaled 2.2 million cubic feet, slightly lower than in 1969.

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[1]International 1/4-inch log rule is used throughout this report for board-foot volume of roundwood unless otherwise specified.

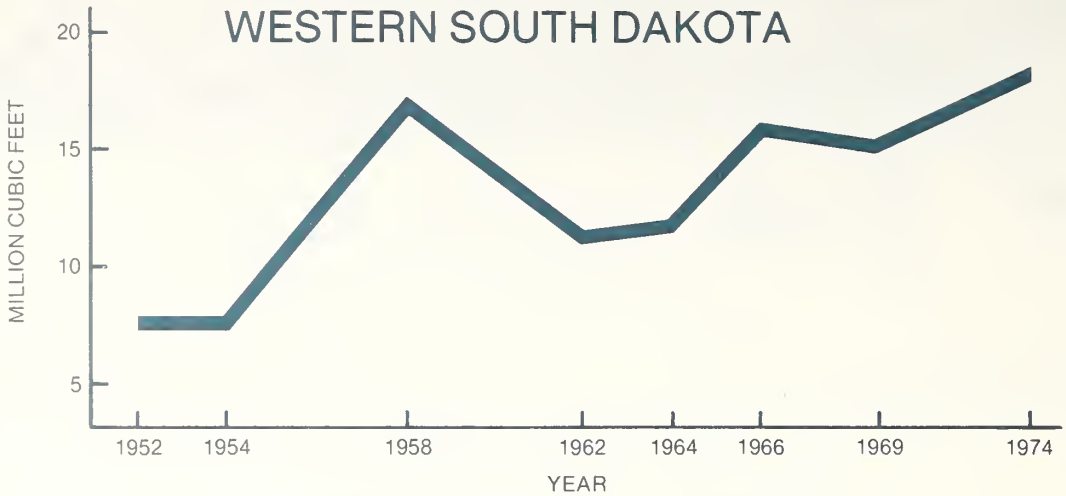

Figure 1.--Roundwood production, 1952-1974. Plotted volumes through 1969 are from Setzer (1971).

The entire saw log production in 1974 was reported from five counties (table 2). Among these was Harding County, which had no reported saw log production in previous studies dating back to 1952.

Three-fourths of western South Dakota timber came from National Forest lands, about 9 percent less than in 1966. Nearly all the remainder came from private lands.

One-half of the volume of sawmill residues was utilized in 1974 compared to 35 percent in 1969. Sixty-four percent of the volume of coarse and fine residues combined was utilized, up from 45 percent in 1969 and continuing the increasing trend of mill residues utilization (table 3). Coarse residues use approached 90 percent, relating to chipping equipment installed in all the larger mills and ready fuelwood markets available to the smaller ones.

Table 1.--*Roundwood harvest from western South Dakota timberlands by species and product, 1974*

Product	Species		All species	
	Ponderosa pine	White spruce	Volume	Percent
	Thousand cubic feet			
Saw logs	11,963	1	11,964	66.6
Pulpwood	3,783	--	3,783	21.1
Commercial poles	515	--	515	2.9
Posts, fuelwood, miscellaneous farm timbers	1,689	--	1,689	9.4
Total	17,950	1	17,951	100.0
Percent of total	100.0	([1])	100.0	

[1]Less than 0.05 percent.

Table 2.--*Mill receipts of saw logs from western South Dakota timberlands by species and county of origin, 1974*

County	Species		All species	
	Ponderosa pine	White spruce	Volume	Percent
	- Thousand board feet, International 1/4-inch rule -			
Custer	13,513	--	13,513	17.6
Harding	412	--	412	.5
Lawrence	38,903	3	38,906	50.7
Meade	3,810	--	3,810	5.0
Pennington	20,047	--	20,047	26.2
Total	76,685	3	76,688	100.0
	- - - - - Thousand board feet, Scribner - - - - -			
Custer	12,065	--	12,065	17.6
Harding	368	--	368	.5
Lawrence	34,735	3	34,738	50.7
Meade	3,402	--	3,402	5.0
Pennington	17,899	--	17,899	26.2
Total	68,469	3	68,472	100.0

Table 3.--*Estimated volume of used and unused residues from sawmills in western South Dakota, 1974*

Residues	Total		Unused		Used	
	1969	1974	1969	1974	1969	1974
	- - - - - - - - - - Thousand cubic feet - - - - - - - - - - - - - -					
Bark	1,176	1,955	1,168	1,801	8	154
Coarse[1]	1,835	3,184	581	416	1,254	2,768
Fine[2]	1,984	2,602	1,510	1,677	474	925

[1]Material suitable for chipping, such as slabs, edgings, and trimmings.

[2]Material such as sawdust and shavings.

Timber production from growing stock in western South Dakota in 1974 was 17.7 million cubic feet, which was about 1.8 percent of the net growing stock volume on commercial forest land. Figure 2 shows timber production for two selected years, net annual growth, and annual mortality. Estimates of commercial forest land area by site classes, growing stock volume, growth, mortality, and salvable dead volumes are for 1970 (Green and Setzer 1974).

Production in 1974 was 62 percent of gross growth and 65 percent of net annual growth. It appears that western South Dakota commercial forest land could support some increase in the harvest level.

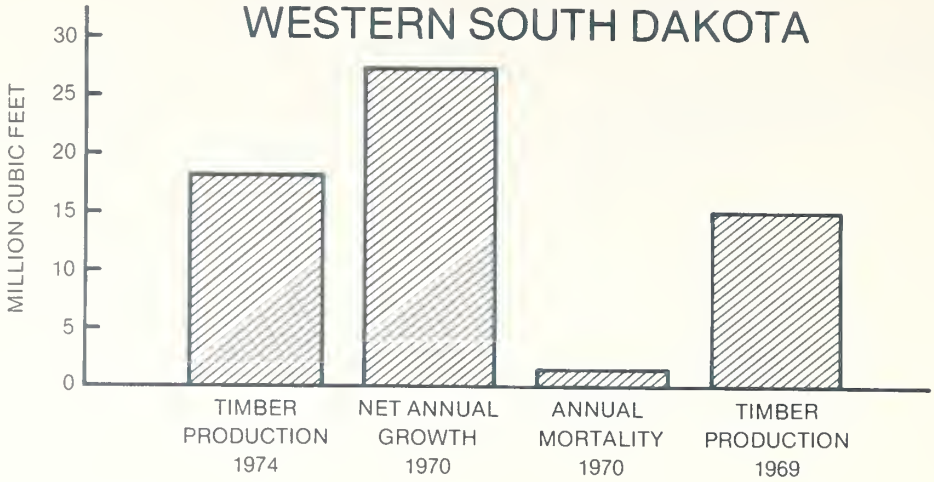

Figure 2.--Relationship of timber production for 1974 and 1969, net annual growth, and annual mortality.

Volume of products from dead trees was 114,000 cubic feet, which is about 9 percent of annual mortality, or 0.2 percent of the volume of salvable dead trees. There appear to be opportunities to increase timber production by capturing new mortality and utilizing greater quantities of existing salvable dead trees.

Average stocking of western South Dakota's commercial forest land is 846 cubic feet per acre. Assuming a harvest of 600 cubic feet per acre (3,100 board feet) with partial cutting, the area necessary to yield the 1974 timber volume would have been at least 30,000 acres or about 2.4 percent of the commercial forest land.

There is opportunity for increasing annual timber production in western South Dakota if the potential productivity of the commercial forest land can be reached and maintained. An estimate of potential annual productivity for South Dakota is 44.6 million cubic feet. It was calculated by multiplying the midpoint cubic foot value of each site class by its associated area (Green and Setzer 1974) and summing the products.

Expressed in terms of production per acre of commercial forest land, the volume of timber produced in 1974 was calculated as 14.32 cubic feet, or 63.25 percent of gross growth on commercial forest land. At the full potential productivity level, 22.48 cubic feet per acre could be harvested on commercial forest land without cutting more than 63.25 percent of gross growth. This increase would amount to more than 10 million cubic feet per year for western South Dakota.

ACKNOWLEDGMENT

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GLOSSARY

Commercial forest land — Forest land producing or capable of producing crops of industrial wood and not withdrawn from timber utilization. (Areas qualifying as commercial forest land have the capability of producing in excess of 20 cubic feet per acre per year of industrial wood under management. (Inaccessible areas and areas that cannot be harvested with available equipment are included, except when the areas involved are small and unlikely to become suitable for production of industrial wood in the foreseeable future.)

Gross growth — Annual increase in net volume of trees in the absence of cutting and mortality.

Growing-stock trees — Live trees of commercial species meeting specified standards of quality or vigor; excludes cull trees.

Net annual growth — The increase in net volume of a specified size class for a specific year. (Components of net annual growth include the increment in net volume of trees at the beginning of the specific year surviving to its end, plus net volume of trees reaching the size class during the year, minus the net volume of trees that died during the year, minus the net volume of trees that became rough or rotten trees during the year.)

Mill residues — Wood materials from manufacturing plants not utilized for the mill's primary product. (In this report, includes slabs, edgings, trimmings, miscuts, sawdust, and shavings.)

Roundwood products — Logs, bolts, or other round sections cut from trees for industrial or consumer uses. (In this report, includes saw logs, pulpwood, fuelwood, piling, poles, hewn ties, mine timbers, and various other round, split, or hewn products.)

Site class — A classification of forest land in terms of inherent capacity to grow crops of industrial wood.

Timber production — Production of roundwood timber products.

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